**Classification of Matter**

The two main categories of matter are pure substances and mixtures.

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Each of these categories is broken into two smaller groups as shown. Fill in the last four labels.

**1. Elements**

Pure substances \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Always found on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples: hydrogen, helium, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2. Compounds or Molecules**

Pure substances containing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to form a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Can also be known as compounds.

Recognized by a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

Examples:

🡪 water \_\_\_\_\_\_\_\_\_\_\_\_\_\_

🡪 carbon dioxide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3. Homogeneous Mixtures or Solutions**

Mixtures that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ throughout.

There is only \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples: milk, coke, fruit punch

What’s in milk? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4. Heterogeneous Mixtures**

You can see \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples:

🡪 sand + water, oil + water, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Classify each of the following examples:

1. A chocolate chip cookie is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Iron is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Caffeine is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Vanilla ice cream is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Classification of Matter**

The two main categories of matter are pure substances and mixtures.

- made of only one type of particle - made of 2 or more types of particles

Each of these categories is broken into two smaller groups as shown.

**1. Elements**

Pure substances containing only one type of atom.

Always found on the periodic table.

Examples: hydrogen, helium, sodium, carbon

**2. Compounds or Molecules**

Pure substances containing two or more different kinds of atoms chemically bonded together to form a molecule. Recognized by a chemical formula.

Examples:

🡪 water (H2O)

🡪 carbon dioxide (CO2)

**3. Homogeneous Mixtures or Solutions**

Mixtures that look the same throughout.

There is only one visible part or **phase .**

Examples: milk, coke, fruit punch

What’s in milk? Water, calcium, lactose sugar, and protein. But we see only 1 phase.

**4. Heterogeneous Mixtures**

You can see two or more different phases .

Examples:

🡪 sand + water, oil + water, layer cake, deluxe pizza

Classify each of the following examples:

1. A chocolate chip cookie is a heterogeneous mixture.

2. Iron is a pure substance, an element.

3. Caffeine is a pure substance, a compound.

4. Vanilla ice cream is a homogeneous mixture.